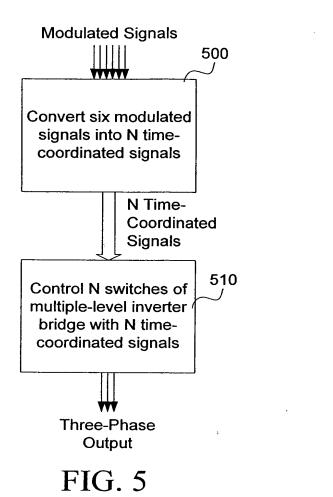
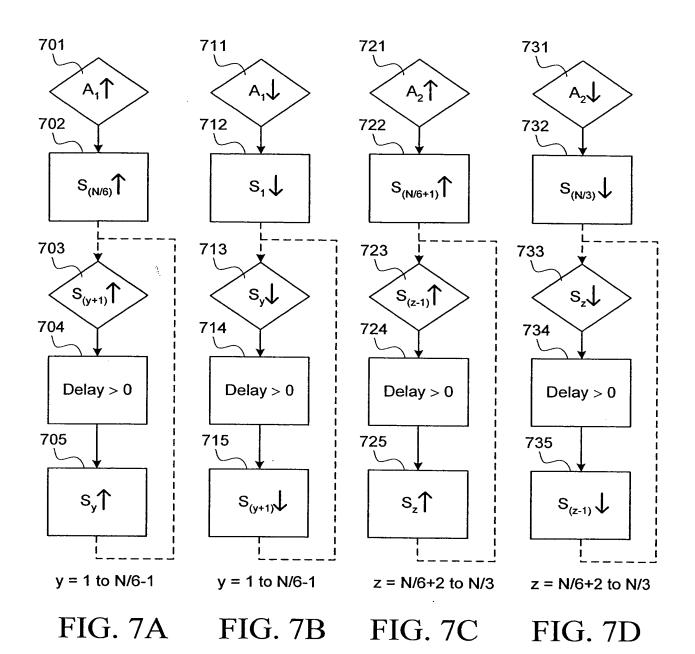
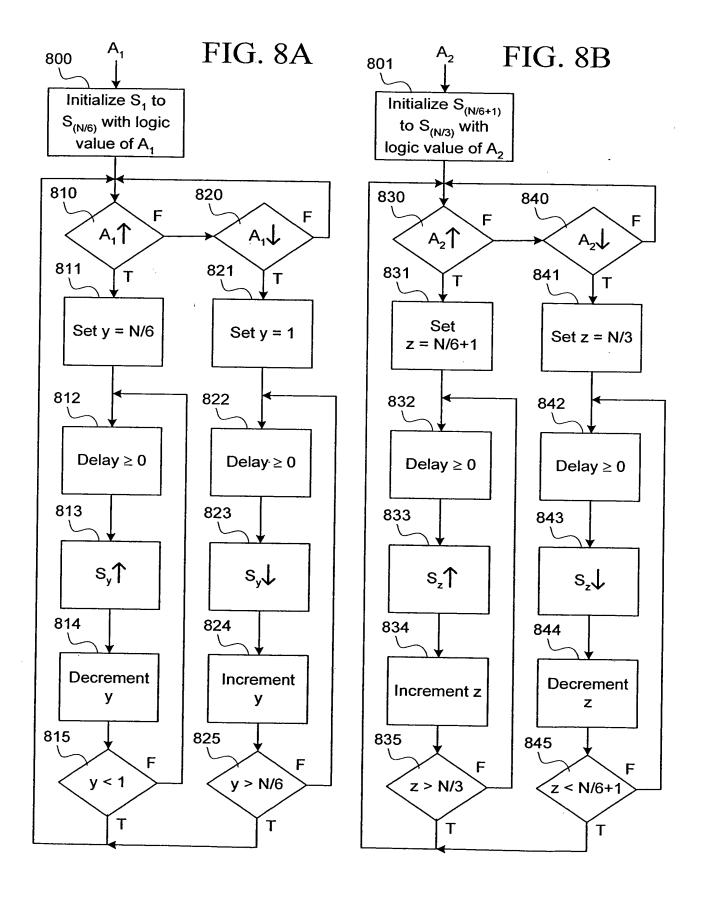


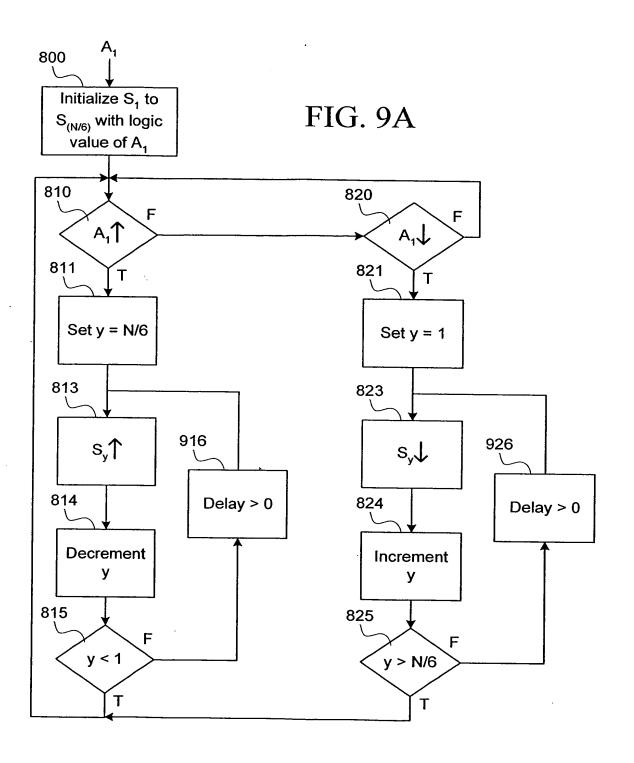
<u>sv</u>	VITCH STATE	<u>OFF</u>	<u>ON</u>	
3 LEVEL	1)	SI,S2	S3,S4	
	2)	SI,S4	\$2,\$3	FIG. 4A
	3)	S3,S4	SI,S2	110.411
4 LEVEL	1)	SI,S2,S3	C4 CE CC	
1 22122	2)	S1.S2.S6	\$4,\$5,\$6 \$3,\$4,\$5	
	3)	SI.S5.S6	\$2,\$3,\$4	FIG. 4B
	4)	\$4,\$5,\$6	SI,S2,S3	
5 LEVEL	,,	01.00.07.4		
2 LEVEL	1)	SI,S2,S3,S4	S5,S6,S7,S8	
	2)	\$1,\$2,\$3,\$8	S4,S5,S6,S7	
	3)	SI.S2.S7,S8	S3,S4,S5,S6	FIG. 4C
	4)	SI,S6,S7,S8	\$2.\$3,\$4,\$5	
	5)	S5,S6,S7,S8	\$1,\$2,\$3,\$4	

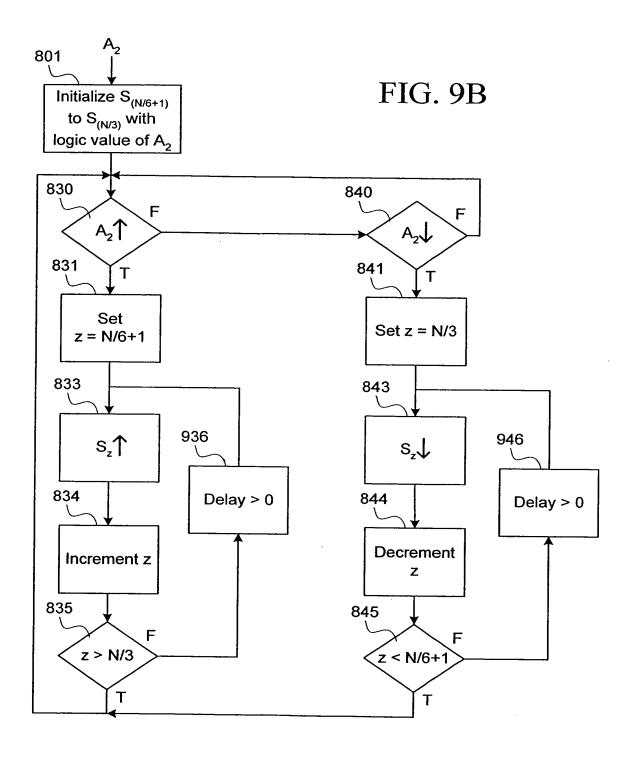


600 Convert modulated signals A₁ and A₂ into N/3 time-coordinated signals Time-Coordinated Signals S_1 to $S_{(N/3)}$ Control N/3 switches of branch of multiple-610 level inverter bridge with N/3 timecoordinated signals One Phase of Three-Phase Output FIG. 6









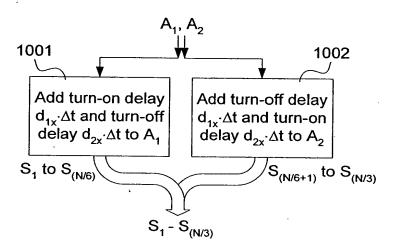
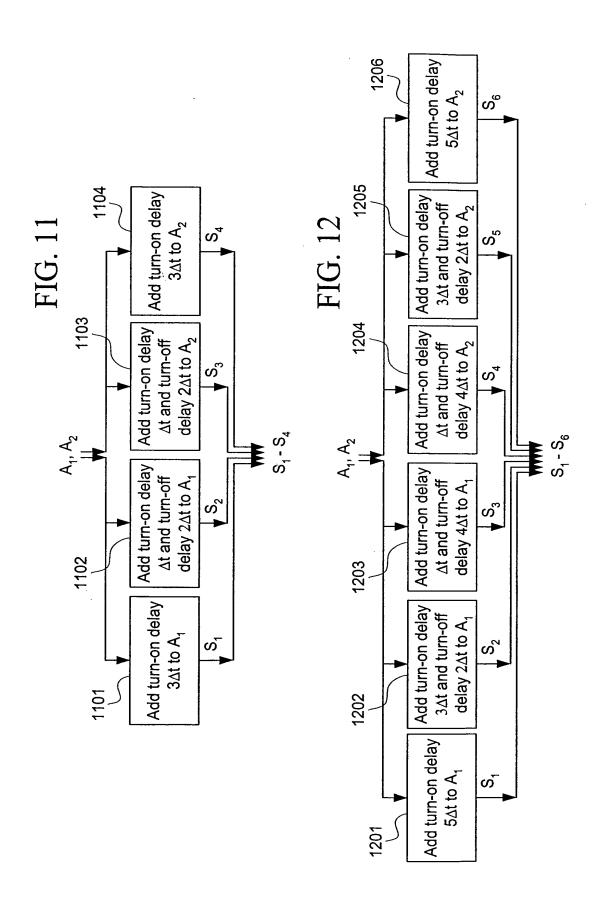
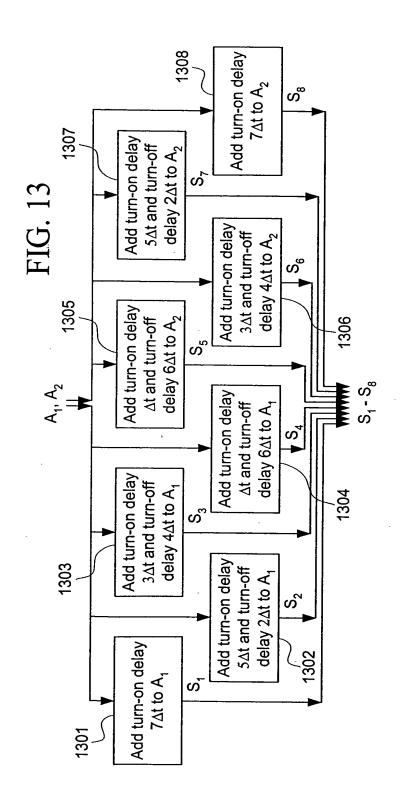
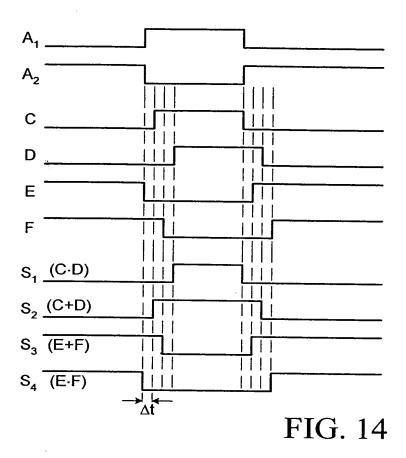


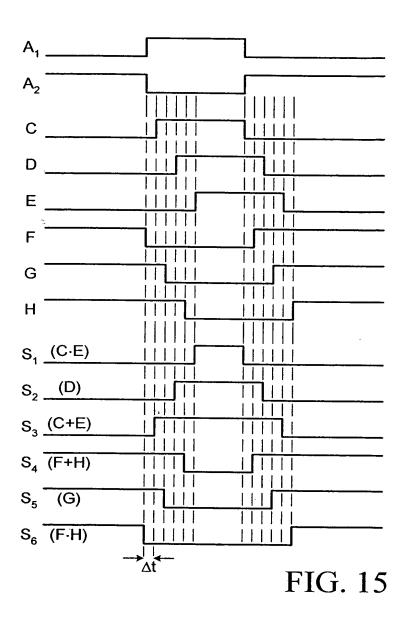
FIG. 10

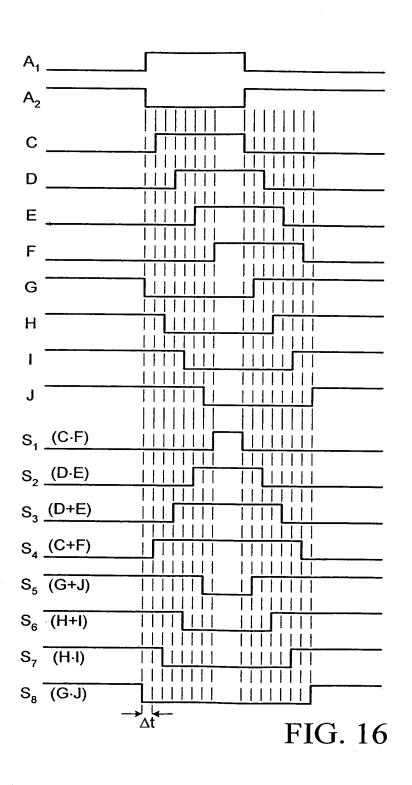




,3°4







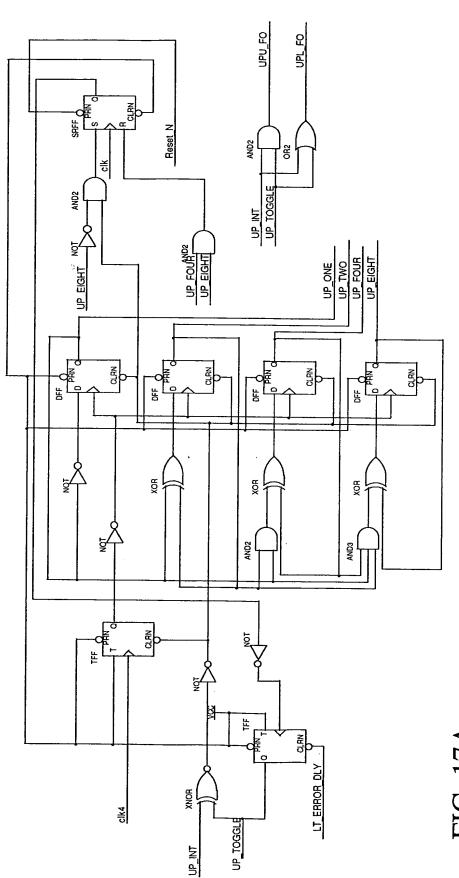
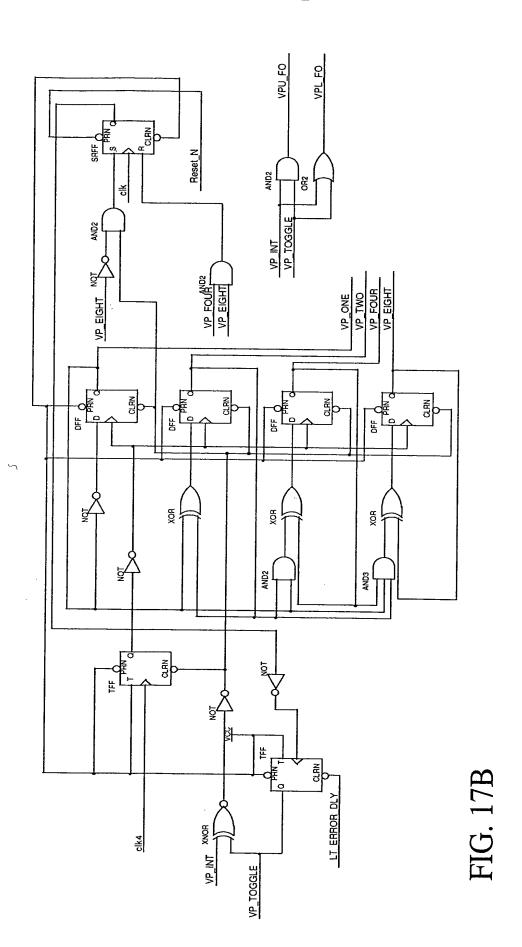


FIG. 17A



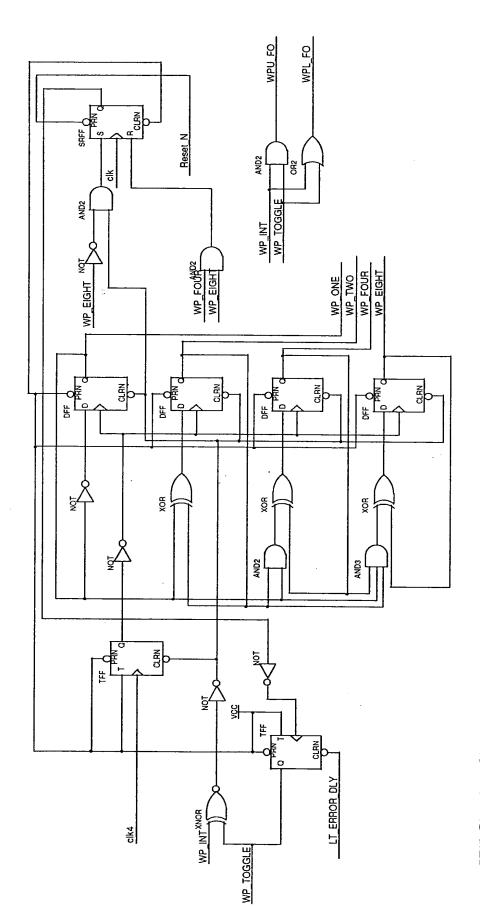
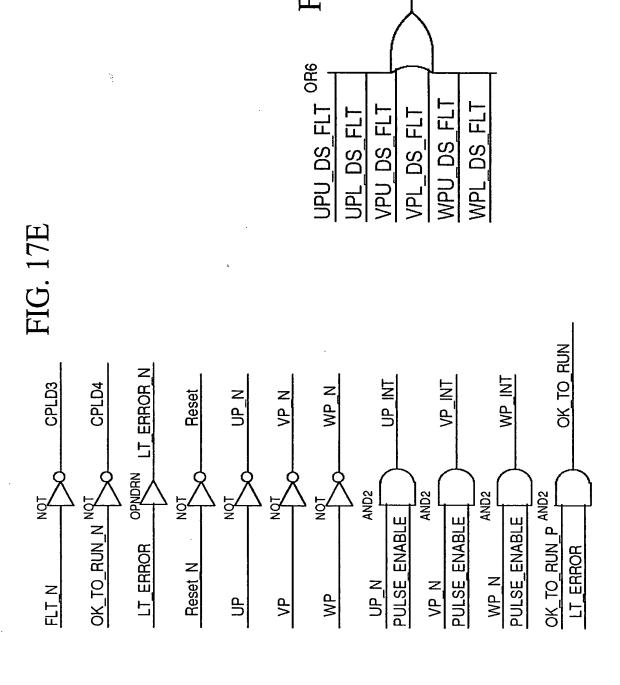


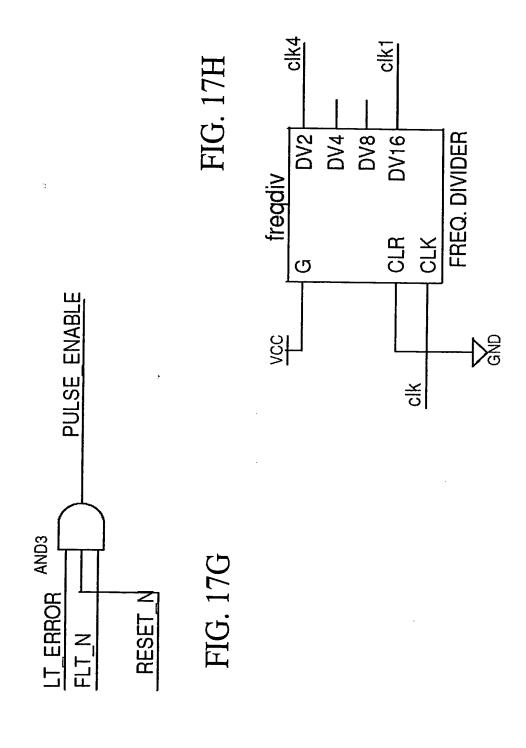
FIG. 17C

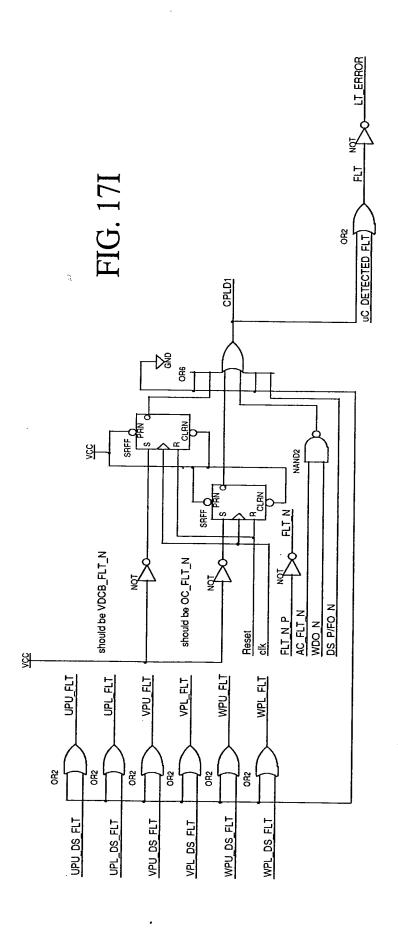
@UP_FO @UN_FO @VP_FO @WP_FO @WP_FO	CPLD6 CPLD7 CPLD8 CPLD9 CPLD10	CPLD2 To Next Card Ok to Run @ESTIMATOR#3 CPLD1	Next Card Ok to Run Next Card Fault
OUTPUT UPU_FO OUTPUT WPU_FO OUTPUT WPU_FO OUTPUT WPU_FO OUTPUT WPU_FO OUTPUT WPU_FO	UPU_ELT OUTPUT "MicroController Interface" UPL_ELT OUTPUT DPL_ELT VPU_ELT OUTPUT VPU_ELT VPL_ELT OUTPUT VPL_ELT WPU_ELT OUTPUT WPU_ELT WPU_ELT OUTPUT WPU_ELT WPU_ELT OUTPUT WPU_ELT WPL_ELT OUTPUT WPU_ELT WPL_ELT OUTPUT WPU_ELT	OUTPUT OK_TO_RUN OUTPUT T	ÌЙ
CIK INPUT CIK NO INPUT Reset_N NP INPUT VP WP INPUT WP WP INPUT WP	FBK INPUT UPU FBK FBK INPUT VPU FBK FBK INPUT VPU FBK FBK FBK FBK INPUT WPU FBK	N_T NPUT N_T NPUT N_T NPUT NPUT NPUT NPUT NPUT NPUT NPUT NPU	TED_FLT
Res @UN	@UP_FBK UPU_FBK UPL_FBK OLV_FBK OLV_FBK VPU_FBK OLV_FBK WPU_FBK OLV_FBK WPU_FBK OLV_FBK OLV_FBK OLV_FBK OLV_FBK OLV_FBK	@ESTIMATOR#2 AC_FLT_N FLT_N_P OC_FLT_N VDCB FLT N	@CPLD5 uC_DETECTED_FLT WDO_N OK_TO_RUN_P OK_TO_RUN_N LT_ERROR_N_N

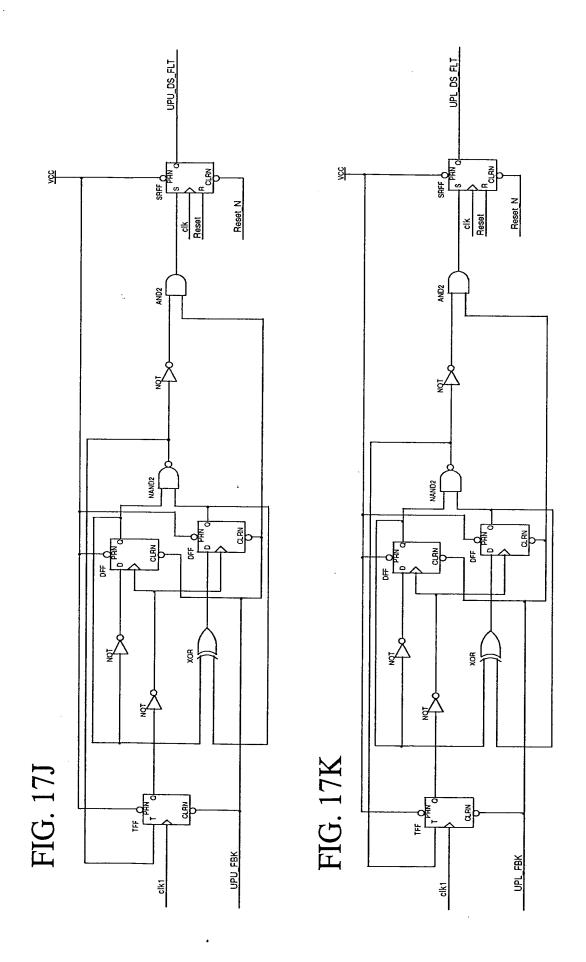
FIG. 17D

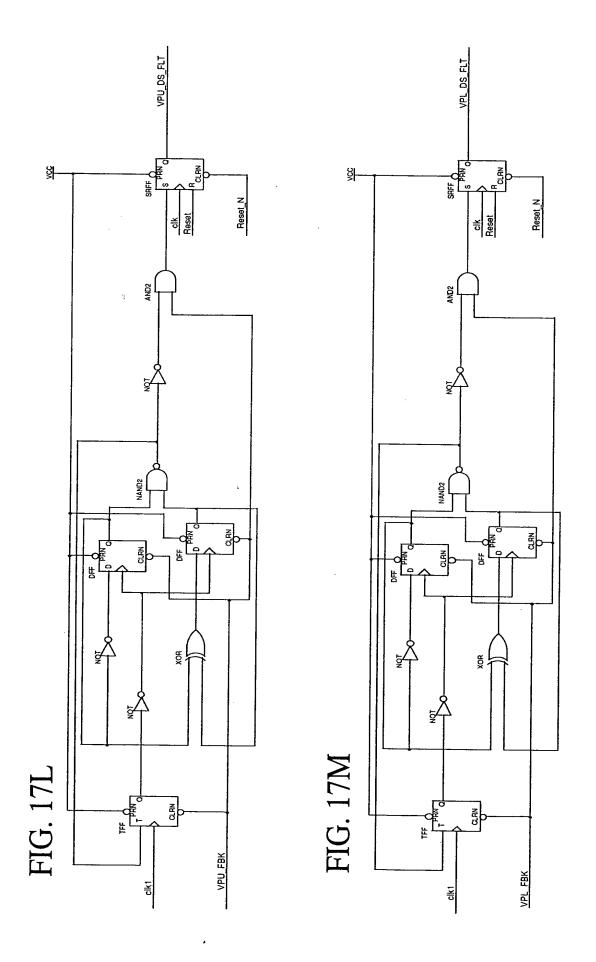
DS P/FO N

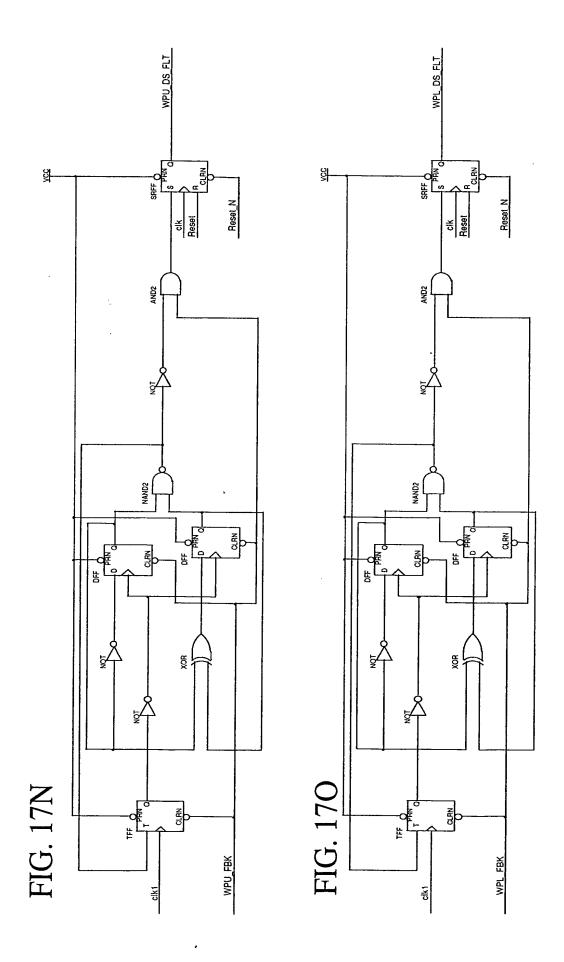


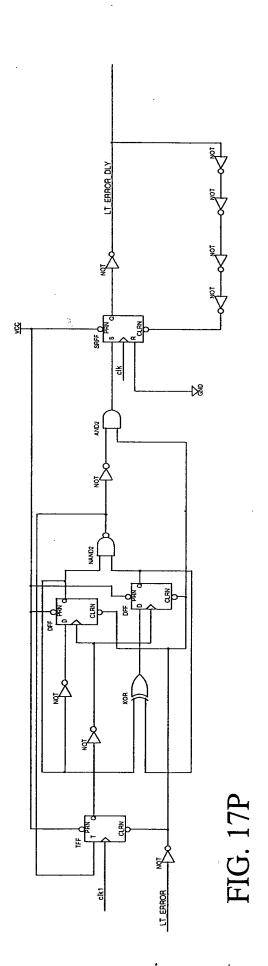


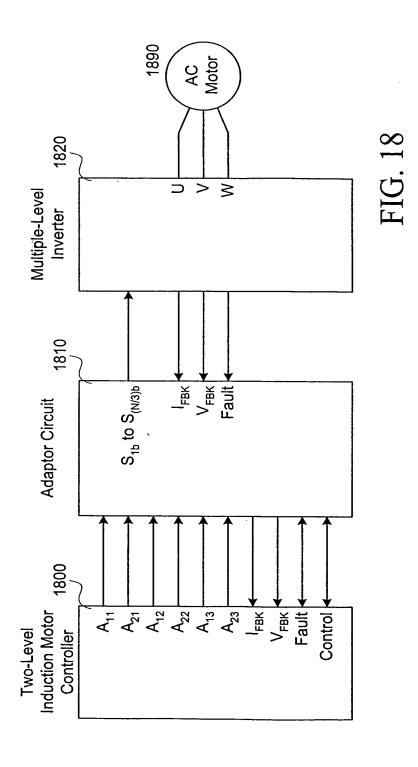


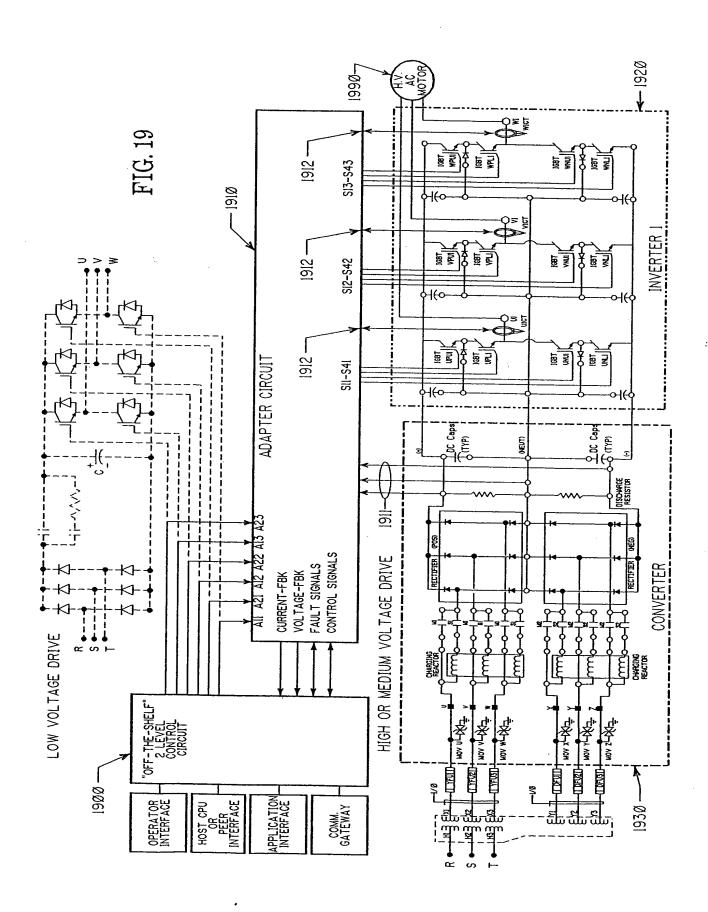


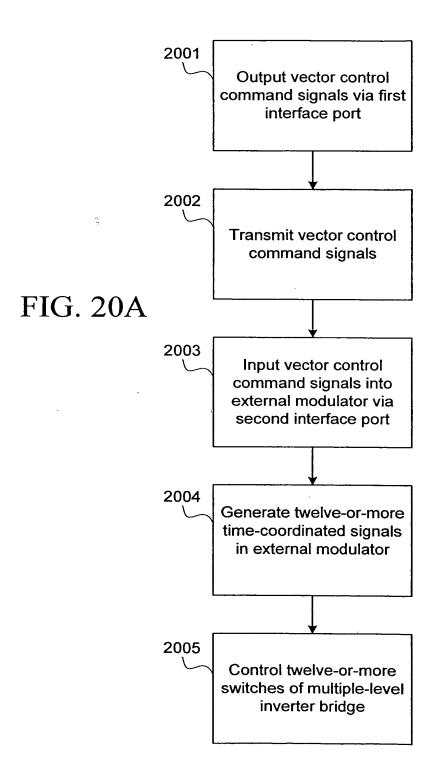


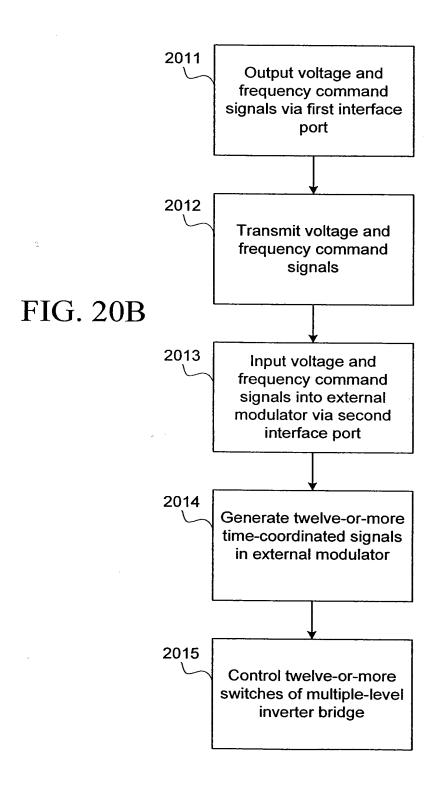


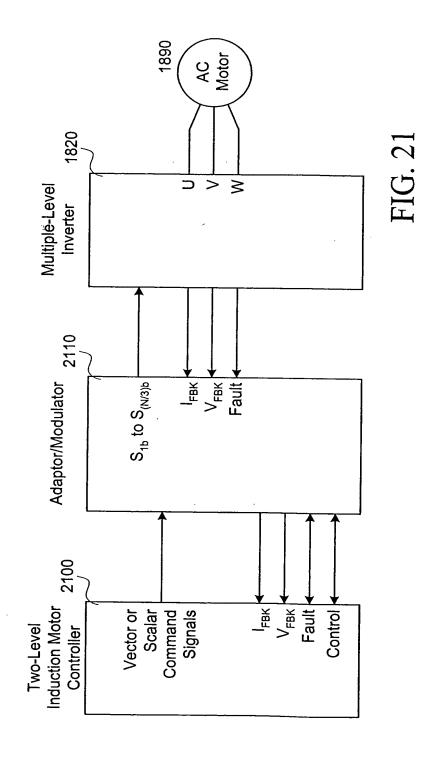


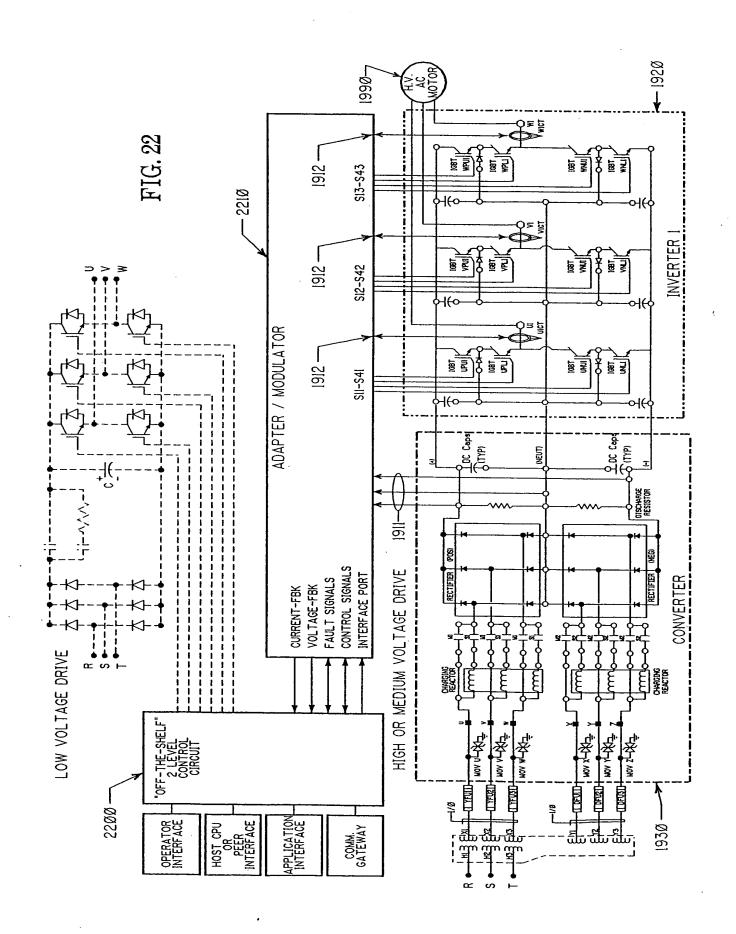




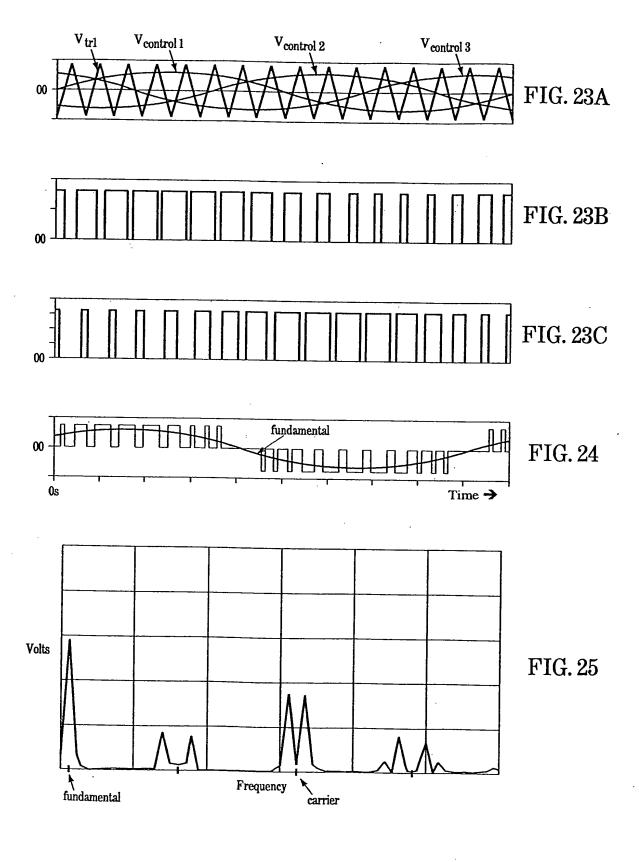








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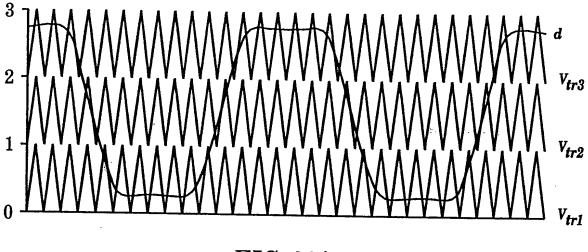


FIG. 26A

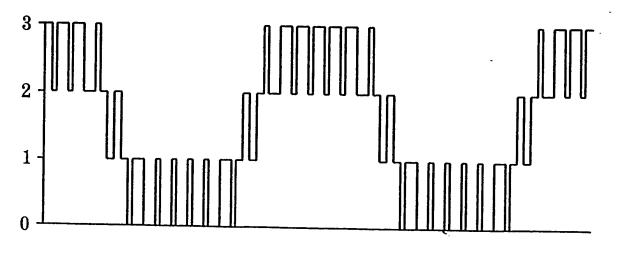
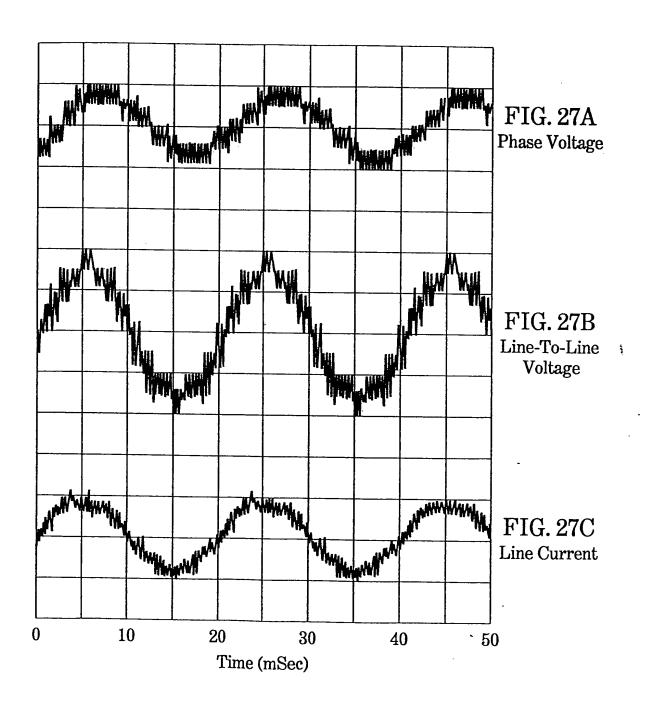
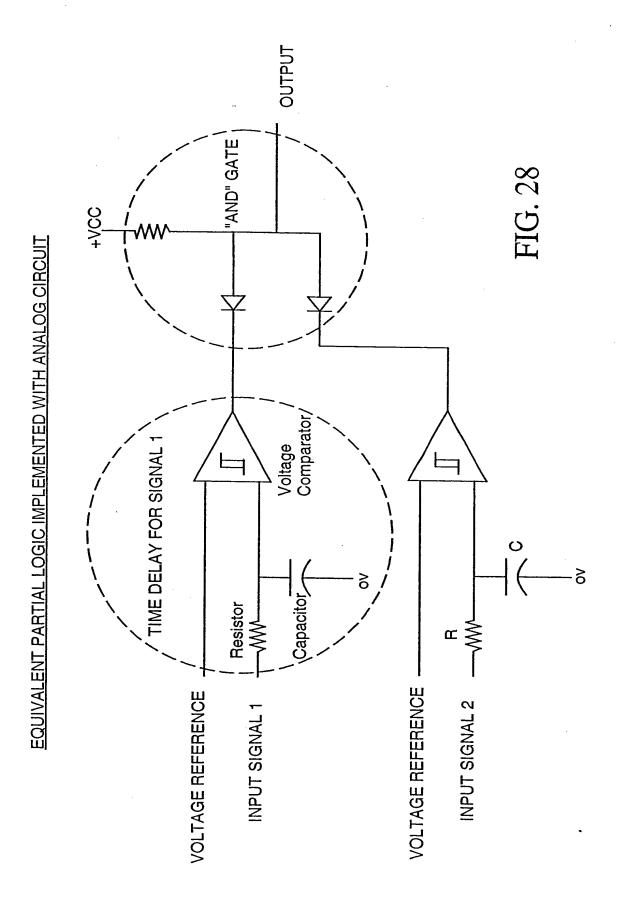


FIG. 26B





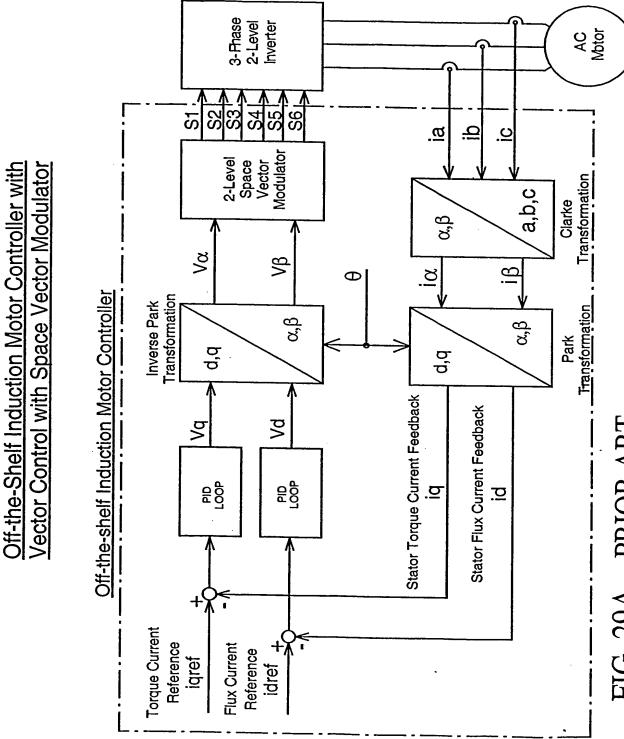


FIG. 29A PRIOR ART

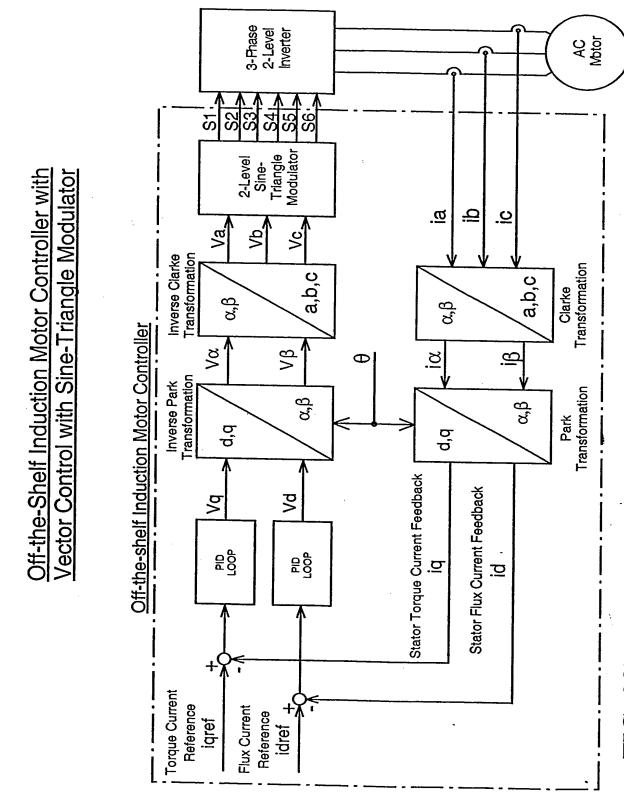


FIG. 29B PRIOR ART

3-Phase MultiLevel Inverter Ac Motor ည MultiLevel Space Vector Modulator Adapter Circuit Example of the Second Variation of the Invention with FIG. 30A ζ< 8 or Parallel Port Space Vector Modulator 3-Phase 2-Level Inverter .ပ <u>ਕ</u> <u>.Q</u> Modulator 2-Level Space Vector Serial or Parallel Port Park Clarke Transformation Transformation a,b,c α,β Off-the-shelf Induction Motor Controller ij <u>ಶ</u> θ Inverse Park Transformation g, B g, B Park d,q d,d Stator Torque Current Feedback 🌓 Stator Flux Current Feedback ₽ \$ PID LOOP PID LOOP .酉 ₫. Torque Current Reference idref + Flux Current Reference igref

3-Phase MultiLevel Inverter AC Motor က S MultiLevel Sine-Triangle Modulator Adapter Circuit FIG. 30B Example of the Second Variation of the Invention with or Parallel Port Serial Sine-Triangle Modulator 3-Phase 2-Level Inverter Sine-Modulator Parallel Port Serial ō <u>.</u>@ ij .ပ Park Clarke Transformation Transformation inverse Park Inverse Clarke Transformation Transformation Off-the-shelf Induction Motor Controller a,b,c a,b,c ά,β α,β ۶ ۲ δ, g,B a,B p,b (**) م, م Stator Torque Current Feedback, δ, Stator Flux Current Feedback PID LOOP PID LOOP ġ ₫. Torque Current Reference Flux Current TReference igref

3-Phase MultiLevel Inverter Ac Motor ည Sine-Triangle Modulator MultiLevel Mathematical Transformations and Sine-Triangle Modulator FIG. 30C ر د \$ Transformation Inverse Clarke a,b,c g B Adapter Circuit χ γ δ Transformation Inverse Park α,β d,d 2 θ 2-Level Inverter 3-Phase Serial or Parallel Port <u>'a</u> 희일 Park Clarke Transformation Transformätion 2-Level Space Modulator Vector a,b,c α,β, Vβ z A ರ Inverse Park Transformatjon α,β α,β Off-the-shelf Induction Motor Controller Ġ,Ġ Stator Torque Current Feedback 🗸 or Parallel Port Serial ۸ Stator Flux Current Feedback .酉 PID LOOP PID LOOP <u>o</u>. Torque Current Reference Flux Current Reference Idreff igref

Example of the Second Variation of the Invention with

3-Phase MultiLevel Inverter Ac Motor ည MultiLevel Space Vector Modulator Mathematical Transformation and Space Vector Modulator Example of the Second Variation of the Invention with გ | δ Inverse Park Transformation Adapter Circuit 3-Phase 2-Level Inverter გზ d,q 2 Φ Triangle | Modulator 2-Level Sineor Parallel Port Serial <u>.</u>@ ë <u>ပ</u> Inverse Clarke Transformation Clarke Transformation a,b,c a,b,c αβ g B α/ > 1 82 9 ಶ Inverse Park T<u>ransformatio</u>n Park Transformation გუ გგ Off-the-shelf Induction Motor Controller a, p d,q Serial or Parallel Port \$ ۶/ Stator Torque Current Feedback Stator Flux Current Feedback ₫. .¤ PID LOOP PID LOOP Torque Current Flux Current Reference idref+ Reference Idref